Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (original) A process for manufacturing nanoscale powders comprising:

providing a feed comprising solid powders;

providing thermal energy to the feed to produce a vapor from the feed;

nucleating nanoscale powders from the vapor;

thermally quenching said nucleated nanoscale powders;

collecting the thermally quenched nanoscale powders, wherein the step of providing thermal energy raises a peak processing temperature to at least 3000 K; and

wherein the process operates at a peak processing velocity greater than 46 feet per second.

2. (original) The process of claim 1 wherein the thermal energy is provided in the form of plasma.

3. (original) The process of claim 1 wherein the thermal energy is provided in the form of internal energy.

4. (original) The process of claim 1 wherein the thermal energy is provided in the form of pulsed electric arc.

5. (original) The process of claim 1 wherein the thermal energy is provided in the form of a combination of two or more of methods selected from the group consisting of internal energy, heat of reaction, inductive, microwave, electromagnetic, direct electric arc, pulsed electric arc and nuclear.

6. (original) The process of claim 1 wherein the nanoscale powders comprise an oxygen containing compound.

7. (original) The process of claim 1 wherein the nanoscale powders comprise a metal containing compound.

8. (original) The process of claim 1 wherein the nanoscale powers comprise a metal.

9. (original) The process of claim 1 wherein the nanoscale powers comprise an alloy.

10. (original) A device prepared using the nanoscale powders manufactured using the process of claim 1.

11. (original) A sensor prepared using the nanoscale powders manufactured using the process of claim 1.

12. (original) A fuel cell prepared using the nanoscale powders manufactured using the process of claim 1

13. (original) A battery prepared using the nanoscale powders manufactured using the process of claim 1.

14. (original) A product prepared using the nanoscale powders manufactured using the process of claim 1.

15. (original) The process of claim 1 wherein the peak processing velocity is greater than 1 Mach.

16. (original) A process for manufacturing nanoscale powders comprising:

providing a feed comprising fluid;

providing thermal energy to the feed to produce a vapor from the feed;

nucleating nanoscale powders from the vapor;

thermally quenching said nucleated nanoscale powders;

collecting the thermally quenched nanoscale powders, wherein the step of providing thermal energy raises a peak processing temperature to at least 3000 K; and

wherein the process operates at a peak processing velocity greater than 46 feet per second.

17. (original) The process of claim 16 wherein the thermal energy is provided in the form of plasma.

18. (original) The process of claim 16 wherein the thermal energy is provided in the form of internal energy.

19. (original) The process of claim 16 wherein the thermal energy is provided in the form of pulsed electric arc.

20. (original) The process of claim 16 wherein the thermal energy is provided in the form of a combination of two or more of methods selected from the group consisting of internal energy, heat of reaction, inductive, microwave, electromagnetic, direct electric arc, pulsed electric arc and nuclear.

21. (original) The process of claim 16 wherein the nanoscale powders comprise an oxygen containing compound.

22. (original) The process of claim 16 wherein the nanoscale powders comprise a metal containing compound.

23. (original) The process of claim 16 wherein the nanoscale powers comprise a metal.

24. (original) The process of claim 16 wherein the nanoscale powers comprise an alloy.

25. (original) A device prepared using the nanoscale powders manufactured using the process of claim 16.

26. (original) A sensor prepared using the nanoscale powders manufactured using the process of claim 16.

27. (original) A fuel cell prepared using the nanoscale powders manufactured using the process of claim 16.

28. (original) A battery prepared using the nanoscale powders manufactured using the process of claim 16.

29. (original) A product prepared using the nanoscale powders manufactured using the process of claim 16.

30. (original) The process of claim 16 wherein the peak processing velocity is greater than 1 Mach.

31. (original) The process of claim 1 wherein the nanoscale powders comprise a ceramic.

32. (original) The process of claim 16 wherein the nanoscale powders comprise a ceramic.

33. (original) The process of claim 1 wherein the nanoscale powders comprise an intermetallic.

34. (original) The process of claim 16 wherein the nanoscale powders comprise an intermetallic.

35. (previously presented) A process for manufacturing nanoscale powders comprising:

providing a feed comprising a precursor in powder form suspended in a gas;

providing thermal energy to the feed thereby converting the precursor in powder form into a stream comprising vapor;

providing an extended reaction zone downstream of the step of providing thermal energy wherein the stream comprising vapor is condensed to nucleate

solid nanoscale powders by adjusting the thermokinetic state of the stream comprising vapor;

providing a thermal quench of the solid nanoscale powders;

collecting the thermally quenched solid nanoscale powders;

wherein the step of providing thermal energy raises the peak processing temperature to at least 3000 K; and

wherein the process operates at a peak processing velocity greater than 46 feet per second.

36. (previously presented) The process of claim 35 wherein the thermal energy is provided in the form of plasma.

37. (previously presented) The process of claim 35 wherein the thermal energy is provided in the form of internal energy.

38. (previously presented) The process of claim 35 wherein the thermal energy is provided in the form of pulsed electric arc.

39. (previously presented) The process of claim 35 wherein the thermal energy is provided in the form of a combination of two or more of methods selected from the group consisting of internal energy, heat of reaction, inductive, microwave, electromagnetic, direct electric arc, pulsed electric arc and nuclear.

40. (previously presented) The process of claim 35 wherein the nanoscale powders comprise an oxygen containing compound.

41. (previously presented) The process of claim 35 wherein the nanoscale powders comprise a metal containing compound.

42. (previously presented) The process of claim 35 wherein the nanoscale powders comprise a metal.

43. (previously presented) The process of claim 35 wherein the nanoscale powders comprise an alloy.

44. (previously presented) The process of claim 35 wherein the precursor in powder form suspended in a gas has a particle size greater than 1 micrometer.

45. (previously presented) The process of claim 35 wherein the gas comprises oxygen.

46. (previously presented) A process for manufacturing nanoscale powders comprising:

providing a feed comprising a precursor in powder form suspended in a gas;

providing thermal energy to the feed thereby converting the precursor in powder form into a stream comprising vapor;

providing an extended reaction zone downstream of the step of providing thermal energy thereby providing additional residence time to the stream comprising vapor;

providing an additional zone downstream of the extended reaction zone wherein the stream comprising vapor is condensed to nucleate solid nanoscale powders by adjusting the thermokinetic state of the stream comprising vapor;

providing a thermal quench of the solid nanoscale powders downstream of the additional zone;

collecting the thermally quenched solid nanoscale powders; and

wherein the gas is selected to provide an oxidizing or reducing atmosphere during the step wherein the precursor in powder form is converted into a stream comprising vapor.

47. (previously presented) A device prepared using the nanoscale powders manufactured using the process of claim 46.

48. (previously presented) A product prepared using the nanoscale powders manufactured using the process of claim 46.

49. (previously presented) The process of claim 46 wherein the peak processing velocity is greater than 1 Mach.

50. (previously presented) The process of claim 46 wherein the nanoscale powders comprise an intermetallic.

51. (previously presented) The process of claim 46 wherein the nanoscale powders comprise a ceramic.

52. (previously presented) The process of claim 46 wherein the nanoscale powders comprise a composite.

53. (previously presented) The process of claim 46 wherein the thermokinetic state of the stream comprising vapor is adjusted by addition of an oxidizing, reducing or inert kinetic gas in the additional zone.

54. (previously presented) The process of claim 46 wherein the thermokinetic state of the stream comprising vapor is adjusted by reducing the temperature of the stream to achieve supersaturation, wherein the supersaturation causes condensation of solid nanoscale powders in the additional zone.

55. (previously presented) The process of claim 54 wherein the condensed solid nanoscale powders have an average grain size less than 100 nm.

56. (previously presented) The process of claim 54 wherein the condensed solid nanoscale powders have an average grain size less than 50 nm.

57. (previously presented) The process of claim 54 wherein the condensed solid nanoscale powders have an average grain size less than 30 nm.

58. (previously presented) The process of claim 54 wherein the condensed solid nanoscale powders have an average grain size less than 20 nm.

59. (previously presented) The process of claim 46 wherein the thermokinetic state of the stream comprising vapor is adjusted to achieve control of one or more of desired characteristics of nanoscale powders and wherein the desired characteristics is selected from the group: mean size of nanoscale powders, size distribution of nanoscale powders, phase of nanoscale powders, composition of nanoscale powders and interface of nanoscale powders.

60. (previously presented) The process of claim 46 wherein the gas used to suspend the precursor is selected to achieve control of one or more of desired characteristics of nanoscale powders and wherein the desired characteristics is selected from the group: mean size of nanoscale powders, size distribution of nanoscale powders, phase of nanoscale powders, composition of nanoscale powders and interface of nanoscale powders.